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# Is the Concept Of Sea-Based Logistics Sufficiently Specific To Enable Doctrine Development?

by

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The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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**Abstract**
The concept paper "Sea-Based Logistics: A Twenty-first Century Warfighting Concept" is a visionary document on future naval expeditionary logistics operations. While providing a broad stroke vision of future logistics, it is not specific enough to underwrite the transition from concept to doctrine. The five tenets that underpin this concept are measured against four criteria to determine each tenets respective doctrinal utility. The tenets are not specific enough in terms of expeditionary force size and composition, seabase protection, and seabase composition. The lack of specificity forces planners to conduct analysis on worst case basis which leads the the conclusion of a paradigm shift in logistics and battlegroup operations is required to meet the needs of the concept. In its present form, sea-based logistics challenges the core of U.S. Navy culture and the way the Navy views itself and is not likely to be accepted by the Navy.

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The concept paper "Sea-Based Logistics: A Twenty-First Century Warfighting Concept" is a visionary document on future naval expeditionary logistics. This vision is a major paradigm shift from the current doctrine and encompasses all aspects from deployment of troops and equipment to sustainment. While providing a broad stroke vision of naval expeditionary logistics, the concept paper is not specific enough to underwrite the transition from vision to doctrine. In addition, the change in battle group composition and operations that is implied by sea-based logistics must be addressed before doctrine can be developed. Analysis of sea-based logistics' five tenets will show where more specificity is required by the Navy and the Marine Corps to make the concept a doctrinal reality.

"Sea-Based Logistics: A Twenty-First Century Warfighting Concept" is based on U.S. Marine Corps concepts of Operational Maneuver From the Sea (OMFTS) and Ship-To-Objective Maneuver (STOM). They are the operational and tactical basis for how Marines envision they will fight in the future. A synopsis of OMFTS and STOM is given to illuminate the shift in the requirements and procedures of logistics concepts and to reveal some of the pitfalls implied by sea-basing the logistics support. This is followed by an overview of the sea-based logistics concept paper. Each tenet of the concept will then be measured against four criteria: acceptability by the Navy, adaptability and flexibility, consistency with the lessons of history, and attainability in the face of resource restraints.

Operational maneuver from the sea is not a new concept. The Normandy invasion of World War II, the island hopping campaigns in the Pacific, and the Inchon landing of Korea are several historical examples of OMFTS. What is new is the Marine Corps' use of the OMFTS concept as the guideline around which force structure, doctrine, tactics, techniques, and procedures are being determined to meet the challenge of both today and the future. The underlying principles of OMFTS are to focus on the operational objective, use the sea as maneuver space, and generate overwhelming

tempo and momentum to pit against enemy weakness. It emphasizes intelligence, deception, and flexibility and integrates all organic, joint, and combined assets. The Marine Corps views the future of military operations to be primarily in the littoral regions of the world, while assuming that the United States will conduct these actions alone and without cooperation, at least initially, from other nations. The heart of OMFTS is to maneuver naval forces at the operational level which will exploit a significant enemy weakness and result in a decisive blow[1].

It is this operational maneuver against an enemy's critical vulnerability which is new. This effects-based warfare identifies the enemy's center of gravity, or "hub of power," and its associated critical vulnerabilities. The center of gravity may be tangible, such as enemy forces or lines of communication; or it may be intangible, such as the will of the people to fight.[2] After identifying this center of gravity, effects-based warfare attacks it, either directly or indirectly, through its vulnerabilities. These vulnerabilities, whether they are the enemy's critical strengths or weaknesses, become the operational objectives. One of the key tactical concepts for implementing OMFTS is STOM.

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[1]Headquarters Marine Corps, Operational Maneuver From the Sea (Washington, DC: 1995), 4,7.

[2]Headquarters Marine Corps, Operational Maneuver From the Sea, 7.

Ship-to-objective maneuver is the tactical manifestation of OMFTS by which the seas are used to gain advantage over the enemy and to avoid high risk engagements. The concept of STOM is to have the seaborne expeditionary force, equipment, supplies, and combat service support be contained on ships over-the-horizon from where they assemble, load, and deploy. By using speed, mobility, and surprise, the force lands at the primary objective without having to set up a beachhead and lodgment area. Once this occurs, all force sustainment, rear area, and combat service support functions are conducted aboard ships stationed over-the-horizon.[3] The Marine Corps views this concept as the future approach for all operations regardless of scope, type, or duration of mission. Sea-based logistics is the flexible sustainment concept that provides the needed support for the expeditionary force.

Sea-Based Logistics (SBL) is a future concept of naval expeditionary logistics, the sustainment of the force that is conducting OMFTS and STOM. This combined Navy and Marine Corps concept envisions military operations of the future conducted in the littoral regions of the globe and coupled with uncertainty of type, breadth, and scope of mission.

> SBL is " the operational and tactical sustainment of forces operating on and from the sea. It is a concept to support forces that are naval in character but trained, organized and equipped to operate as an integral part of a joint force. The concept describes a means to support littoral power projection from over-the-horizon, independent of sovereignty restrictions and overseas basing requirements."[4]

The concept envisions using improved technologies, along with the best practices developed in the

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[3]U.S. Marine Corps Combat Development Command, Ship-To- Objective Maneuver (Quantico, VA: 1997), 1-4.

[4]Holder G.S. and Rhodes J.E., "Sea-Based Logistics: A Twenty-First Century Warfighting Concept", 12 May 1998, <http://www.concepts.quantico.usmc.mil/sbl.htm> [10 NOV 2001].

commercial sector, to increase all aspects of operational logistics. Advances in logistics support aircraft and high-speed landing craft have made over-the-horizon sustainment possible.

The MV-22 Osprey and the CH-53E have increased range and lift capacity, allowing for Marines to be transported and sustained at much further ranges. Additionally, expected advances in equipment will make the Marines a lighter, faster, more lethal force. Lighter and faster equates to reduced sustainment requirements ashore. The overarching advantage of this concept is that the logistics base, by using the ocean as operational maneuver space, will have greater flexibility and security, and, simultaneously, less vulnerability. Since the forces and sustainment infrastructure are co-located, the need for establishing lodgments on the beach and the associated operational pause will be eliminated.

Though the development process from vision to operational doctrine is a long and difficult, it can be described with a few simple sentences. The first step is to determine if the concept can be conducted with existing equipment. If it can, then the concept is incorporated into a fleet experiment, along with an analysis of the results. If necessary, this may be done multiple times. Once the results are analyzed and acceptable to the "fleet", a doctrine working group is developed. The working group then takes the analyzed results of the fleet experiments and hones the concept, actual results, and demonstrated capability into a working doctrine. However, if the concept cannot be tested with current assets and capabilities, then requirement and feasibility studies are conducted. In these cases, some reasonable expectation of attaining the future capability must exist, otherwise the vision is merely a dream.

The concept of sea-based logistics falls in between these two conditions. The U.S. Navy, with

its current doctrine, conducts limited sea-based logistics operations. Because the concept can be tested with current assets, various studies have been conducted and papers have been written on the subject. Shortfalls identified in these studies, however, are often left unaddressed as "acquisition of future capabilities" with no basis for these expectations. By not addressing these issues during analysis, doctrinal development is difficult, at best, and an unattainable, unrealistic dream, at worst.

Underpinning the concept of sea based logistics are its five tenets: Primacy of the Sea Base, Reduced Demand, In-Stride Sustainment, Adaptive Response and Joint Operations, and Force Closure and Reconstitution at Sea. Each of these tenets will be measured against four specific criteria to determine its respective doctrinal utility. These criteria: acceptability by the Navy, adaptability and flexibility, consistency with the lessons of history, and attainability in the face of resource restraints,[5] measure the tenets in terms of their readiness for doctrinal development. Because the focus is on impediments to doctrine development, only the criteria that are not met are addressed.

[5]These criteria were chosen from "Lessons And Conclusions From The History of Navy and Military Doctrinal Development" by Dr. James J. Tritten, an analyst for the Naval Doctrine Commad.They are 4 of the 6 Measures of Effectiveness that he suggests doctrine should be judged by.

The first tenet, primacy of the seabase, is where the paradigm shift from traditional naval expeditionary logistics takes place. "The primacy of seabasing will be its ability to build, project, and sustain combat power. Sea-based logistics will employ an integrated, over-the-horizon, floating distribution center and workshop providing indefinite sustainment."[6] While the primary fighting force will carry its initial sustainment, afloat prepositioned ships will provide the long term sustainment. The seabase will replace the large logistics base on the beach; all of the required functions -- receipt, breakout, repack and load, and distribution to troops ashore -- will be conducted at and from the seabase. Replenishment of all supplies will be done primarily by vertical or vertical short take off and landing aircraft. Forward arming and refueling points will be established to meet the fuel and ammunition needs of the force, extending both air and ground operations. Over-the-horizon distances of more than 200 miles are envisioned. The seabase will also act as the maintenance depot to include aircraft maintenance. As a result, the logistics footprint and requirement for rear area defense is reduced, and the burden of having to support the combat service support element is lessened.[7]

A study by the Naval Studies Board showed that by eliminating the shore base and all the associated activities, the sustainment requirement can be reduced by almost 80 percent.[8] The logistics footprint ashore is definitely reduced, but the majority of the requirement has only been shifted to the sea base. The size and composition of the seabase are not addressed by the concept paper, thereby leaving

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[6]Holder and Rhodes, 3.

[7]Holder and Rhodes, 3.

[8]Naval Studies Board, Naval Epeditionary Logistics. (Washington D.C.: National Academy Press, 1999) 37.

possible compositions ranging from the amphibious-ready groups (ARG) of today to the development of a new class of vessels. For small conflicts with a Marine Expeditionary Unit or Marine Expeditionary Brigade size force, this research suggests sea-basing can be supported and has some advantages. However, to sea base sustainment for a Marine Expeditionary Force for an indefinite period of time with no host nation support is beyond the capabilities of today's Navy and possibly the future's. One significant problem is that to meet the sustainment needs, the seabase would need the capability to receive strategic lift assets.

A worst case scenario of a very large force sustained indefinitely will require a very large and capable seabase. The Marine Corps has not determined the size or composition of the force, or the duration for which sustainment is required. The base would be required to offload, store, and trans-ship commodities received from large surface and air delivery vessels. Since the nature of future operations is uncertain, not all equipment on the prepositioned ship will necessarily be needed for every operation. Due to the nature of prepositioned assets, the sea base will require the capability to conduct selective offload. This is a monumental task --to offload all commodities, find the required ones, and then reload the excess-- and it requires considerable space, people, and time. This suggests a seabase comprised of a large number of medium ships, a few large ships, or one very large mobile offshore base (MOB).

The Center For Naval Analyses (CNA) conducted a study in June 1998 on future sea-basing concepts. Among other things, the study looked at ship design and capability versus cost. The required capability of ship design was a function of host nation support, deployment time, and the requirement for an intermediate staging and embarkation point (ISEP). Ship design was a function of the required capability. Seven options of varying combinations of ship design and capability were analyzed. They

ranged from replacing today's ships of 1980's capability with new ships with current technology, to ships capable of receiving and launching strategic airlift. The study was able to put bounds on the seabase problem. The option of a seabase requiring no host nation support or ISEP, which is the vision of the SBL concept paper, was cost prohibitive in both acquisition and life cycle cost, as well as technologically risky.[9] A common theme throughout the research of this topic is the lack of mission needs statements from the Marine Corps. In the simplest of terms, before progress can be made towards making sea-basing a reality, the Marine Corps must determine "how much, and for how long." As written, this tenet is not attainable. Until the Marine Corps makes its determinations, SBL is not likely to be accepted by the Navy.

Adaptability and flexibility of the concept wane as the size of the seabase increases. Once the sea base is established and daily operations begin, the operational maneuver advantages diminish because the base cannot just stop operations and move quickly. Underpinning SBL is its operational maneuverability, without which the concept loses its advantages over current practices.

[9]Center for Naval Analyses, MAA for MPF Future Sea-Basing Concepts: Volume 1 Final Summary Report, (Alexandria, VA: June 1998), 87-92.

According to Naval Doctrine Publication 4, Naval Logistics, the capstone publication for naval operational logistics, six fundamental principles guide the naval logistics process. Among these is survivability -- "ensuring the functional effectiveness of the logistics infrastructure in spite of degradation and damage."[10] At the operational level, sea basing makes logistics a critical vulnerability at best. The high value unit at sea will no longer be the aircraft carrier, but the sea base. Security of the logistics infrastructure becomes a three-dimensional, not two-dimensional, problem. The most significant threat would be a diesel submarine attack. These vessels are small, quiet, inexpensive, difficult to defend against, and in the orders of battle of many littoral nations. Current U.S. Navy tactics for defense against submarine attack rely on speed. As mentioned above, an established seabase would not be capable of conducting defensive maneuvers. Any doctrine associated with sea-basing would have to include a strategy for seabase protection and the necessary force to provide it. No known studies to date have covered this, but it is not difficult to imagine the entire focus of battle group operations shifting to protect this critical vulnerability. This shift in focus is not consistent with the last sixty years of history nor is it likely to be accepted by the Navy.

Proponents of sea-basing would argue that required technology exists, and over time the technological risk as well as the costs will decline. They might also argue that protecting a sea base is inherently no different than protecting any other high value unit. There may be merit in the first argument because the future is uncertain. However, with the present budgetary constraints, acquisition of a large MOB or the large numbers of ships capable of meeting all visionary requirements cannot be reasonably

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[10]U.S. Navy, Naval Logistics, Naval Doctrine Publication 4 (Washington, D.C.: 20 February 2001), 23.

expected. As for seabase protection, guarding any unit against a diesel submarine attack is difficult and relies on the protected unit having some speed and mobility, of which a seabase will have little to none.

Reducing the logistics demand, the second tenet, assumes that through improvements in engine design, new technologies, alternative power sources, improved processes, and precision guidance and targeting, the attacking force will be leaner, more efficient, and require less quantitative sustainment. The requirement for massive inventories of equipment, material, and associated personnel ashore will be eliminated, saving the valuable time and resources currently devoted to inventories received, staged, re-issued, and forwarded to receiving units. Improved information technology and rapid distribution will reduce stockpiled material and allow critical items to flow freely and directly to the end user. This decrease in logistics burden allows for more fighting forces to be sustained ashore. The reduced logistics demand also requires the sea-basing of Navy and Marine operational fires, reducing the requirement for ordnance and fuel ashore. The cumulative effect of demand reduction and increased efficiency in resource management will be increased combat power and agility for rapid concentration of forces.[11]

Of the five, this tenet has the most doctrinal utility in that improved processes and technologies will undoubtedly increase the efficiency of logistical support, thereby reducing excess and unwanted material demand. Doctrinal development for this aspect of sea-basing is quite possible, but, the assumptions made about force structure ashore and operational fires at sea need to be addressed

[11]Holder and Rhodes, 4.

before the process can begin. Additionally, the selective offload capability implied by this tenet poses a much greater problem at sea than on the beach, and will be discussed with in-stride sustainment.

OMFTS and SBL envision a lighter, faster, more lethal expeditionary force capable of projecting combat power from over-the-horizon, with an increased reliance on sea based fires. This suggests a reduction or elimination of organic ground armor. The Marine Anti-Armor Operations concept relies less on organic armor and more on sophisticated anti-armor weapons, operational maneuver, and combined arms fires from the sea and air.[12] The logistics demand will be greatly reduced, since armor units consume large quantities of fuel and ammunition when in combat. However, even with advances in technology, the Marine Corps does still recognize that a need exusts for some amount of organic armor in the future.[13] Because these units do use vast amounts of supplies, the Marine Corps needs to determine an expected number of units. The projected logistics requirements determine the size and composition of the seabase. The flexibility, adaptability, and attainability are determined by the makeup of the seabase, which can not be determined without an estimation of demand.

No data is available to determine if the current composition of a carrier battlegroup could meet the additional combined arms fires requirement. In addition to providing force protection for the seabase, an increased dependence on sea-based fires alone could affect the number of required

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[12]U.S. Marine Corps Combat Development Command, Anti-Armor Operations, 06 May 1998, <http://www.concepts.quantico.usmc.mil/antiarmr.htm>, [10 January 2002].

[13]U.S. Marine Corps, Anti-Armor Operations

combatant surface vessels, tactical aircraft, and even aircraft carriers. Surface ships of the battlegroup are multi-mission tasked with limited magazine capacity. Additional fires would require more frequent replenishments resulting in increased off station time. To maintain coverage, ships would have to cycle through the surface fires mission. An adversary such as Iran, with a surface, subsurface, and air threat, could make providing the additional fires difficult with the current battlegroup compositions.

Furthermore, not all munitions can be replenished at sea. Currently SM-2 (Surface to Air missile), Tomahawk missile, and Vertical Launch Anti-Submarine Rocket (VLA) compete for launcher space, and the 5-inch 54-caliber light-weight gun munitions load has to incorporate rounds for anti-surface, anti-air, and naval surface fire support. An increase in surface fire support will reduce available space for other primary mission areas. Additionally, the newest class of surface combatants only has one gun. This leads to expeditionary logistics driving the composition of the battlegroup and the operational and tactical doctrine under which they operate. The Navy is not likely to accept this philosophy.

The third tenet of SBL, in-stride sustainment, reduces cost by using automated requisition and distribution systems that rely less on human input. Through commercial technology that anticipates demand and communicates consumption data, end users "pull" supplies to arrive when needed. Total asset visibility will allow refined allocation of transportation resources, improved item availability, and increased velocity of material movement. The seabase will receive material when it is needed, thus reducing excess inventory levels which will result in better sustainment response. This requires a selective offload capability for rapid retrieval and distribution of essential items from the sea-based storerooms and will be accomplished through automated storage and retrieval technologies. The

seabase will serve as the primary distribution center with the capability to trans-ship cargo from containers and redistribute to forces ashore.[14]

[14]Holder and Rhodes, 4-5.

Selective offload capability is absolutely essential for sea basing logistics. Because prepositioning prepares for any contingency, selective offload is needed to match equipment and supplies with the operational requirements. The initial surge equipment and supplies are stored on ships strategically located around the globe. These prepositioned ships are loaded with cargo to allow for any type of operation. Prepositioned ships deploy and rendezvous with the seabase but, unfortunately, are not capable of selective offload. For continuous sustainment, combat logistics force ships provide all needed support by supplying cargo from land based depots to the seabase. These ships are also not capable of selective offload. Thus to get only the supplies needed sea base personnel will have to unpack, locate, inventory, and stow required supplies and repack unneeded material. This requires a great deal of space, material handling equipment, and properly trained personnel in order to be successful. Conducting these functions on land is difficult enough, but more so under the space and material handling limitations associated with a seabase. In the study by the CNA mentioned earlier, stowage and accessibility were the principal cost driver in ship design for the seabase. "The additional requirement to embark the equipment, tactically configured and in a manner that allows it to be selectively accessed and offloaded, adds to the hull volume required. Lanes and ramps, or elevators, must be provided to allow movement from the storage location to either the flight deck or staging area . . . further increasing the internal hull volume."[15] The risk of damage and loss is also much greater at sea than it is on land; with a leaner supply tail, loss and damage will have a more adverse affect on sustainment. This negatively impacts not only the attainability criteria, but also the adaptability and

[15]Center for Naval Analyses, 86.

flexibility criteria previously addressed.

Though all of the studies reviewed during research revealed that sea basing is feasible at varying levels of support, none addressed the inherent risk, difficulties, and dangers of conducting operations at sea. The above concept increases efficiency and optimizes logistical support, reducing costs and eliminating excess. However, the effect would be the same for land-based logistics. The Navy is not likely to accept the increased risk without any added benefit.

Adaptive response and joint operations, the fourth tenet, envisions logistic support across a broad range of military operations, to include humanitarian assistance and missions where ports and airfields are initially unavailable. The logistics support is to be flexible, able to adapt to changing requirements as the situation on land expands and changes. This tenet also suggests the seabase retain land-based logistics support capabilities for expanded operations. The seabase will be fully capable of integrating with theater logistics and joint forces.[16]

The difficulties of covering the logistical needs across a broad range of military operations are similar to in-stride sustainment with many of the same conclusions. The only new analysis to apply to this tenet is the idea of retaining the capability to establish a shore-based area. The concept paper implies that for large operations, shore based logistics may be required, thereby negating the added benefit of shifting to SBL. The logical conclusion drawn is that a break point exists where SBL is no longer feasible. This is supported by the CNA study previously mentioned. It placed bounds on the SBL concept concluding that an acceptable seabase would range in capability between current ARG

[16]Holder and Rhodes, 5.

configuration and the development of a large MOB. Assuming a break point does exist, then that point needs to be decided by the Marine Corps before doctrine development can begin.

While sustainment of operating forces is the main focus, facilitating the build-up of amphibious combat power is well within the capability of sea-based logistics. The final tenet, force closure and reconstitution at sea, will eliminate the reception, staging, onward movement, and integration operations (RSOI) ashore and shift them to the seabase. This is the assembling of forces and marrying them with equipment, loading and transporting them to the objective. This eliminates the requirement for access to secure ports and airfields as force closure begins when a maritime prepositioning force arrives at the seabase and the troops are flown aboard. With the arrival and assembly operations taking place at sea, the operational pause at the beach is eliminated.[17]

[17]Holder and Rhodes, 5-6.

Reconstitution at sea is the ability to re-embark forces and material, rejuvenate equipment and personnel through maintenance and re-supply, and readying the force for redeployment to follow-on operations. The ability to reconstitute at sea is a function of organic logistics capability and the interface with CONUS-based sustainment. In addition to force reconstitution, sea-based logistics provide for forces ashore and at sea to have in place the ability to recover equipment and personnel, decontaminate, salvage, dispose of equipment, pack, stow, and re-embark assets. Further seabase capabilities are intermediate maintenance (IM) repair for organic combat equipment and on site spares fabrication.[18]

Conducting RSOI operations at a seabase creates many of the same problems as mentioned in the analysis of in-stride sustainment but to a much greater degree. RSOI operations require large areas of space for reception and staging, and large amount of lift assets for onward movement. Even small, improved port facilities become "clobbered" during these operations, and they have the luxury of space when compared to a seabase. Additionally, wheeled and tracked vehicles can move under their own power once placed at the reception area on land; on a seabase, they will have to be transported to land by air or surface craft. In order to effectively conduct RSOI operations at sea, the seabase will have to be similar in design to the MOB discussed in the CNA study. Similarly, the Naval Studies Board concluded that a MOB could meet the need, though it had little enthusiasm for the concept.[19] The trade-offs between size, capability, mobility, speed, and costs become the driving factors. A reasonable expectation should be that not only will the technology exist, but that plans to acquire the capability exist before the process of doctrine development starts. The MOB does not meet the attainability criteria.

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[18]Holder and Rhodes, 6.

[19]Naval Studies Board, 29-30.

Thus, it would be foolhardy to even think of doctrine.

Conducting IM level repairs at sea is done routinely. Aircraft carriers and large amphibious ships have limited IM capability aboard. The Navy, for years, had a fleet of tenders that specialized in intermediate level maintenance. The Battleforce IM shops aboard the CVN's and the large amphibious ships currently operate at near maximum capacity and would not be able to handle the expected increase in maintenance responsibility. Even though the Marines bring mechanics and technicians, these ships have no available space on these ships for increased maintenance functions at the level prescribed in SBL. In order to meet the anticipated IM level requirement, a specialized maintenance ship similar in function to the tenders of old is needed. Tenders were a great source of spare parts, specialized repair, and technical assistance, however, operating and life-cycle cost have resulted in all but two having been de-commissioned. With this in mind, it is not reasonable to think that the Navy would support re-instituting an old idea that was determined not to be cost effective.

Three conclusions are drawn from the analysis. First, as written, the sea-based logistics concept is not sufficiently specific to enable doctrine development. The lack of specific force composition and estimated sustainment requirements undermines the tenets of SBL. Worst case analysis revealed that changes to battlegroups and their operations, the re-institution of ship tenders, and development of new classes of ships would be required. These changes are inconsistent with the lessons of history and the likelihood of them being accepted and attained, in the face of resource restraints, is very low.

Protection of the seabase, additional risks, and inherent dangers of conducting sea-based logistics operations at sea needs to be addressed. Though many studies have been made on sea-based logistics, none were found to contain analysis of seabase protection. Additionally, the studies did not

consider the effects of sea state and poor weather, they merely mentioned that the effect would be negative. Adaptability and flexibility were shown to diminish as a function of size. As maneuverability decreases, the vulnerability of the seabase and the risk to mission success increases.

The final conclusion is that because the tenets were primarily stymied by only two criteria, acceptability and attainability, a break point exists where a SBL concept could be developed into effective doctrine. The major factor preventing the tenets from meeting the criteria for doctrine development is the undetermined force composition and size. The required capability of the seabase is determined by these force sustainment requirements. Assumption of more capability by the seabase results in more complexity and an increasing rise in cost, eventually causing a failure of the tenets to meet the criteria used in the analysis.

In order to make SBL into a viable concept ready for doctrinal development, the Marine Corps must determine the size and composition of the expeditionary force, in addition to an estimate of sustainment duration. Without the force determinations, insufficient information exists for doctrine and force development. Another recommendation is to incorporate sea-based logistics into the fleet battle experiments and analyze the seabase protection requirements for a multi-threat environment with submarines, mines, and increased naval surface fires. A last recommendation is to conduct a study to determine a break-point between force sustainability requirements and a feasible seabasing capability. Only then will the Navy and the Marine Corps have an acceptable and attainable concept of SBL, with flexibility and adaptability, that is in concert with the lessons of history and ready to transition into doctrine.

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